***Conceptual Physics, 10e* (Hewitt)**

**Chapter 32: The Atom and the Quantum**

1

A beam of electrons has

A)

wave properties.

B)

particle properties.

C)

both of these

D)

neither of these

Answer:

C

2

When Rutherford had a stream of alpha particles hit a gold foil, most of the particles

A)

bounced back.

B)

went almost straight through.

C)

stopped.

D)

spiraled.

Answer:

B

3

Most alpha particles fired at a gold foil pass through undeflected because the

A)

electric field is zero inside the gold.

B)

gold atoms, unlike most other metal atoms, are relatively far apart.

C)

atoms of gold, like any others, are mostly empty space.

D)

net charge of the gold atoms is zero.

E)

none of these

Answer:

C

4

The Bohr model of the atom is akin to a

A)

miniature solar system.

B)

blob of plum pudding, where raisins represent atomic nuclei.

C)

central heavy ball with lighter balls connected by springs.

D)

all of these

Answer:

A

5

We now consider the Bohr model of the atom to be

A)

an accurate picture of a hydrogen atom.

B)

totally useless  of historical interest only.

C)

defective and oversimplified, but still useful.

Answer:

C

6

A uranium atom is 238 times as massive as a hydrogen atom. The diameter of a uranium atom is the diameter of a hydrogen atom times about

A)

3.

B)

10.

C)

30.

D)

100.

E)

238.

Answer:

A

7

Heavy atoms are not appreciably larger in size than light atoms because the nuclei of heavy atoms have more

A)

mass.

B)

electric charge.

C)

nucleons.

D)

all of these

E)

none of these

Answer:

B

8)

A key feature of the theory of chaos is

A)

unpredictability.

B)

very small initial differences can lead to very large eventual differences.

C)

the randomness of molecular motion makes prediction difficult.

D)

even orderly systems are seen to be disorderly when carefully studied.

Answer:

B

9)

According to the correspondence principle, a new theory is valid if it

A)

overlaps and agrees where the old theory works.

B)

accounts for confirmed results from the old theory.

C)

predicts the same correct results as the old theory.

D)

all of these

E)

none of these

Answer:

D